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A METHOD FOR THE ESTIMATION OF ANTIPYRINE.

By Milton F. Schaak, Ph.G.

Having had occasion to determine the amount of antipyrine in admixture with caffeine, which had been "shaken out" with chloroform from a proprietary headache liquid, it was found desirable to estimate the antipyrine without separating from the caffeine. Accordingly, the following reaction was made the basis of a colorimetric method.

When sodium nitrite is added to an acidified, dilute solution of antipyrine, a blue-green color is produced, which is still perceptible in dilutions of 1 in 20,000. In more concentrated solutions, a crystalline precipitate of the same color is formed.

These results are due to the reaction between the liberated nitrous acid and the antipyrine, by which a compound is formed that has been shown to be nitroso-antipyrine.

It was determined that a standard solution, that will not turn yellow or fade in from 12 to 24 hours, can be made by dissolving ·02 gm. antipyrine in 25 cc. of water, adding 1·6 cc. of 1 per cent. sulphuric acid and ·8 cc. of 1 per cent. solution of sodium nitrite, and then diluting to 100 cc.

When preparing a solution of an unknown amount, for comparison with the standard, a few preliminary trials must be made to determine the amount of reagents required to fully develop the color, and not be in such excess as to produce a yellowish tinge in the time required.

To avoid precipitation the solution must not be more concentrated than 1 in 500.

When thus properly prepared, the solution can be diluted until the color corresponds exactly with that of the standard.

A little calculation will then show the amount of antipyrine present.

Tubes or beakers of white glass placed upon a white surface are convenient for the color comparisons.

Since the reagents employed do not react with other substances, except pyrazolone compounds, which are not of frequent occurrence, and as antipyrine is readily extracted from mixtures by the use of chloroform, this method admits of wide application.

It may also be mentioned that as this reaction does not take place in the presence of nitrites, but requires free nitrous acid, the incompatibility of antipyrine and (acid) sweet spirit of nitre may be prevented by having the spirit neutral or neutralizing with potassium bicarbonate.

BROOKLYN, N. Y., June 1, 1894.

THE SOLUTION AND TINCTURE OF FERRIC CHLORIDE.

BY HARVEY G. BECK, PH.G.

In the whole history of mankind there is found no other metal upon which depended the progress and civilization of nations as much as that of iron. Its prominence in the arts as well as in medicine gives it a universal popularity.

Therapeutically it has been employed for 3,300 years. To-day it comprises a larger area in the field of medicine than any of the other elements.

Owing to the many preparations of iron, but two will be subjected to investigation, namely: The Tincture of Ferric Chloride which has been used for many years, and the solution of Ferric Chloride which recently became the source of the tincture.

These will be considered together, not with the object of presenting new methods or formulas, but to properly investigate the merits and demerits of the U.S.P. formula, to study the relationship existing between the solution and the tincture, and to determine the value of the various productions as obtained by this method.

Ten carefully selected samples of solution of ferric chloride appear in Table I, showing specific gravity, percentage of ferric chloride, percentage of hydrochloric acid and the presence of nitric

acid or ferrous salt. Twelve samples of the tincture subjected to similar analyses, save that the test for free hydrochloric acid was omitted, gave results as shown in Table II.

TABLE I.—EXAMINATIONS OF SOLUTION OF FERRIC CHLORIDE.

Sample No.	Percentage Fe_2Cl_6	Percentage free HCl	Specific Gravity.	HNO_3	Ferrous Salt.
1, ...	37·46	1·29	1·397	slight	none
2, ...	37·57	·85	1·399	slight	"
3, ...	36·20	2·03	1·387	decided	"
4, ...	37·85	1·04	1·405	slight	"
5, ...	38·83	1·41	1·406	much	"
6, ...	38·41	·00	1·402	much	"
7, ...	35·82	·60	1·367	much	"
8, ...	38·71	1·35	1·407	slight	"
9, ...	34·82	3·19	1·386	trace	"
10, ...	33·83	·84	1·340	none	much
Average, .	36·95	1·26	1·390		

Three of the samples, Nos. 6, 7 and 10, were made by retail pharmacists, all the rest were made by manufacturing chemists, and obtained either directly from the manufacturer, or indirectly from the retailer through the wholesaler.

Six were Baltimore preparations, two New York, one Philadelphia and one Detroit.

All the necessary precautions were taken in ascertaining the specific gravity. Anhydrous ferric chloride was determined by the process given in the Pharmacopœia of 1880, namely: 10 grams of the solution were precipitated with an excess of water of ammonia, well washed, dried and ignited, and weighed as ferric oxide.

Care must be exercised in washing the precipitate, otherwise the percentage of iron will be decidedly too high.

The plan adopted for the determination of free hydrochloric acid, and the tests for nitric acid and ferrous salt, deserve special notice; and the consideration of these will, therefore, be deferred until later.

Observe in the preceding table the approximate relationship existing between the specific gravity and the percentage of anhydrous ferric chloride, also that in most cases it is nearly in proportion to that of the U.S.P. Solution No. 4 is practically correct

in specific gravity and Fe_2Cl_6. No. 10 is lowest in specific gravity, containing also the lowest percentage of Fe_2Cl_6, yet corresponding almost proportionately to No. 4 or the official.

Then again, by taking the average of both columns we have for specific gravity 1·390, and for Fe_2Cl_6, 36·95 per cent., and again the proportion corresponds practically to that of the official—37·8 per cent.

The average of Fe_2Cl_6 is ·85 per cent. below that of the official, which would imply a good collection of samples; but when the extreme variation is observed to be 5 per cent., this would at once indicate some weakness and imperfection in the process, which is to be attributed to the later part in which the U.S P. directs after effervescence, etc., add enough water to make a certain definite weight. If pure iron wire is used, hydrochloric acid containing 31·9 per cent. of absolute acid, sufficient time allowed for complete reaction, the tests for nitric acid, ferrous salt and oxychloride cautiously applied, and the work carefully manipulated, it will result in a reliable product. But the iron is not always pure, hydrochloric acid is often of indefinite strength, the reaction not always completed, besides taking into consideration the liability to error in applying the tests, and the manner in which the work is generally conducted; hence, the process will not result in products of uniform strength. If, instead of diluting the solution to a definite weight, it be diluted to a definite specific gravity, we then might disregard slight impurities in iron or HCl, or other sources of errors likely to be encountered, and secure decidedly better results.

Another noteworthy fact in connection with the table is this: Had the solutions with a specific gravity below that of 1·405 been evaporated, and those containing a higher specific gravity further diluted so that they would all conform with the official in specific gravity, the percentage of Fe_2Cl_6 would vary only about 3 per cent.

The fact above-mentioned, with others involved in the table, forcibly impress some excellent advantages over that of the official method.

The Pharmacopœia directs free hydrochloric acid to be present in the solution of ferric chloride, but does not furnish a method whereby the amount contained may be determined. The U. S. P. assay for anhydrous ferric chloride is not in itself sufficient to insure the quality or standard of the preparation. Every pharmacist should be fami-

liar with the fact that the medicinal qualities largely depend upon the quantity of hydrochloric acid present. When deficient it reduces the percentage of iron and deprives the tincture made therefrom of the ethereal odor, and when added in excess it is very deleterious insomuch that it affects its therapeutic properties, becoming injuriously irritating to the stomach and often producing secondary effects which are very undesirable. References have been made to various works and text-books on chemistry with a view of finding some satisfactory method for making this determination, but with unsatisfactory results; in consequence of which a new and original method (suggested by Prof. W. Simon) was employed, proving to be very applicable, simple and accurate, giving perfect satisfaction in all its details.

Take 1·0 gram of the solution, dilute with 100 cc. of water, neutralize with seminormal solution of potassium hydroxide, using litmus as an indicator, transfer it into a flask and add enough water to make 250 cc. Titrate 50 cc. of the supernatent liquid with decinormal solution of silver nitrate, after the addition of a few drops of neutral potassium chromate. From the number of cc. of silver nitrate solution required, determine total amount of hydrochloric acid present. From the percentage of Fe_2Cl_6 already ascertained in the sample, calculate the amount of absolute acid represented, and deduct from the total; the result will be the free acid present.

In case an excess of KOH solution is added titrate back with sulphuric acid solution.

The official solutions should contain 27·43 per cent. of hydrochloric acid, allowing 1·95 per cent. for free acid. It will be readily observed that the solutions are generally deficient in hydrochloric acid. This is due to a weaker acid than the official being used in making the preparation, causing considerable oxychloride to be formed during the process, which is not always detected. The 5 per cent. of official acid, directed to be added, is partly taken up by the oxychloride, thereby reducing the amount of free acid. The excess is accounted for by reason of insufficient time allowed for the acid to act on the iron. Nos. 3 and 9 are examples of the latter.

The percentage as stated in the column is absolute acid.

Prior to the publication of the Pharmacopœia of 1870, tincture ferric chloride was made either directly from iron wire or from the subcarbonate of iron. The pharmacopœial directions of 1850 were:

"Pour the acid upon the subcarbonate of iron in a glass or porcelain vessel, mix them, and when effervescence ceases, apply a gentle heat and continue it, stirring occasionally until the carbonate is dissolved, then filter the solution and mix with the alcohol." This formula did not provide for an excess of acid, consequently precipitation was apt to ensue; particularly did this objection prevail when inferior acid was used. Tinctures made by this process are very unreliable and of indefinite strength. Incessant complaint of the imperfection of the formula resulted in the adoption of a new and much improved method in the Pharmacopœia of 1860, as proposed by Dr. Squibb and published in the American Journal of Pharmacy, 1857, p. 290.

Pure iron wire was substituted for the subcarbonate. The official directions were: "When effervescence has ceased drop in nitric acid, constantly stirring until it no longer produces effervescence. Lastly, when the liquid is cold add sufficient distilled water to make it measure a pint and mix it with alcohol."

This yielded a tincture which contained a little nitric acid, and all the nitrous acid the iron solution was capable of holding at a temperature near the boiling point. It is claimed that such a tincture has, in six months or a year, a full ethereal odor in which ethyl nitrite is recognizable.

The 1870 Pharmacopœia again modified this formula; the two steps in the process were separated and two distinct preparations introduced, one an acid solution of ferric chloride, the other the tincture which was made from the solution

The committees on revision of 1880 and 1890 continued this plan. Our present official directions are: "After effervescence has ceased apply heat by means of a sand bath, until the liquid is free from nitrous odor."

This solution yields, after being mixed with a definite quantity of alcohol and allowed to stand for three months, the official tincture of ferric chloride. This tincture does not possess the same degree of ethereal odor as that of the 1860 tincture. Even after standing six months or a year, it does not possess much more than a trace. The reaction between the acid and the alcohol is very slow, and the portion of acid small that enters into combination with the alcohol in forming ethers in the course of three months. Therefore, the U. S. P. directs it to stand three months, although it is preferable to stand a year. The ethers formed possess diuretic properties. Com-

paratively few pharmacists comply with that part of the process where it is directed to stand three months; accordingly such products are deficient in diuretic properties.

When the samples were collected one store was found to be out of the tincture entirely. The proprietor immediately proceeded to supply my wants with an extemporaneous preparation. The public at large might take pride in securing a freshly prepared article, but it surely is not what should be expected by those knowing its properties.

The following table gives the results of a comparative analysis of the tincture as found in the retail store:

TABLE II.—EXAMINATIONS OF TINCTURE OF FERRIC CHLORIDE.

Sample No.	Specific Gravity.	Fe_2Cl_6 Per Cent.	Parts by Weight of the Solution used in making the Tincture.	Made from Solution Number	HNO_3	Ferrous Salt.
1, ...	·980	13·15	35	1	0	slight
2, ...	·987	10·00	26·6	2	0	slight
3, ...	·972	11·52	—	—	0	0
4, ...	·980	13·80	—	—	0	trace
5, ...	·980	13·33	—	—	trace	0
6, ...	1·028	17·09	45	4	slight	0
7, ...	·927	10·25	28·6	7	0	decided
8, ...	·948	11·50	—	—	slight	0
9, ...	1·032	11·31	—	—	0	much
10, ...	1·031	12·68	33·6	6	0	much
11, ...	1·030	10·71	29	3	trace	0
12, ...	·972	13·03	—	—	much	0
Average, .	·989	12·36	—	—	—	—

All the samples were collected before the introduction of the new Pharmacopœia, and should, therefore, contain 13·25 per cent. of anhydrous ferric chloride and have a specific gravity of ·980. The new Pharmacopœia has modified the formula for making the tincture somewhat, altering the specific gravity and percentage of anhydrous ferric chloride.

No relationship exists in above table between specific gravity and

percentage of ferric chloride, as in Table I. Compare the average of the two columns and observe that the specific gravity is above that required by the U. S. P., whilst the percentage of ferric chloride is below. Solutions Nos. 9, 10 and 11 having the highest specific gravity are almost inversely proportioned in value of ferric chloride. Such dissimilarities may be due to various causes. The specific gravity is dependent upon the amount of ferric chloride present, the quality of the alcohol, and it is regretting to mention that some of the samples are largely influenced by the presence of water.

By a simple calculation the parts by weight of the solution used in making the respective tincture by the retail pharmacist can be ascertained from the results obtained by the analyses.

A tincture made with a deficient amount of solution, yet retaining its specific gravity, or as in many instances is materially increased, is evidence of the fact that water has been added.

It may, therefore, be assumed that all tinctures having a specific gravity above that of ·980 and a percentage of ferric chloride below that of 13·25, contain a certain amount of water in substitution for alcohol. Nos. 2, 9, 10 and 11 are examples of this class.

Many writers claim it is impossible for tinctures to be devoid of ferrous salt; however, as stated in the table, reactions were obtained from six only.

Some of the tinctures were not made long before the samples were collected. From this time they had been kept in the dark until the tests were applied.

The gradual decomposition taking place is accelerated by heat and light with the reduction of ferric salt into ferrous. Possibly if the tinctures were allowed to stand a considerable length of time, and exposed to heat and light, they would afford a reaction for ferrous salt. Invariably nitric acid was found to be present in the solutions, sometimes ferrous chloride, and very seldom could they be secured free from both these impurities. The presence of nitric acid may be regarded as the result of pure carelessness.

LABORATORY OF THE MARYLAND COLLEGE OF PHARMACY,
June, 1894.

The Scotch Broom is a useful flowering shrub early in June. When planted on high well drained land it is perfectly hardy near Philadelphia, although further north it suffers unless carefully protected in winter.

NOTE ON WILBUR S. SCOVILLE'S PAPER "CHANGE OF VOLUME WHEN LIQUIDS OF DIFFERENT DENSITIES ARE MIXED."

By Louis Kahlenberg.

My attention has recently been called to the above-mentioned paper, which appeared in the minutes of the meeting of the American Pharmaceutical Association (p. 131), held at Chicago, August 14 to 20, 1893. In his article, the author gives a list of thirty-four experiments illustrating that changes of volume generally occur when liquids of different densities are mixed. He mentions the fact that slight changes in temperature also take place, but states that the object of his paper is "only to call attention to the changes in volume which occur, to show how nearly universal this change is, and to demonstrate that it is of sufficient extent to render void the use of specific gravity rules,* in most cases, for anything except approximate results."

If Mr. Scoville will take the pains to consult the chapter on solutions in Ostwald's Lehrbuch der Allgemeinen Chemie (2te Aufl.) Band I, p. 636, he will find that the fact that he seeks to point out by his few isolated experiments has long been known, and that there are generally not only changes in volume when two liquids of different densities are mixed, but also changes in the optical, thermal and other properties. Professor Ostwald treats the especially interesting case of salt solutions in a separate chapter of the volume already mentioned (see pages 782 to 791). References to numerous memoirs on this subject will also be found in the localities cited.

Chemical Laboratory, University of Wisconsin,
June 4, 1894.

The extermination of our native flora by forest fires is often more complete than that caused by plant collectors, who miss small seedlings and do not remove all the roots of plants. But a fire, especially when it attacks the habitat of plants such as *Cypripediums*, imbedded in sphagnum moss and covered with old leaves, completely destroys them, root and branch.

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*Meaning the ordinary rule that applies closely only in those few cases where the volume of the mixture is exactly equal to the sum of the volumes of the liquids mixed.

WHAT ARE THE PURPOSES OF THE NATIONAL FORMULARY, AND HOW CAN IT BEST BE MADE TO SERVE THESE PURPOSES?

By John F. Patton.

Read before the Pennsylvania Pharmaceutical Association, June 15, 1894.

The National Formulary is the natural development and legitimate outcome of the present evolution of the application of remedies to disease. In other words, it standardizes and gives uniformity under authority to an important list of unofficial medicinal preparations generally prescribed throughout the country. It is said, all inventions take their rise from wants unsupplied; hence the proverb, "necessity is the mother of invention."

The want of a uniform standard for unofficial preparations was everywhere felt, and especially was this the case in our larger cities, as witness the fact that its birthplace was in the centre of densest population. Reforms are only inaugurated when evils become unbearable. A multiplicity of new remedies, with no definite standard for their manufacture, was the evil which the National Formulary was designed to correct.

The recently revised and greatly enlarged edition of the United States Pharmacopœia, with its definite standard of remedies, forms but a limited portion of the resources of the medical profession in the treatment of the sick, and this limit, unfortunately, has been greatly enhanced by a disposition, on the part of physicians, to experiment with every new preparation brought to their notice.

The loaded condition of the shelves of the average pharmacy, with compounds outlandish in name, secret in composition, and extravagant in price, many of which were but different brands of what was intended to be one and the same thing, became such a burden as to demand relief.

The initiative to that end was taken by a committee representing the New York College of Pharmacy, the German Apothecaries' Union of New York City, and the King's County Pharmaceutical Association, of Brooklyn.

These committees collecting local and private formulas, published them in book form. Their ready acceptance and general use proved the correctness of the belief as to the lines along which the desired relief was to come.

"As this book," in the language of the preface to the National Formulary, "appeared at a time which happened to be particularly favorable for the realization of the object to be attained," it gained so much ground, even outside of the locality for which it was originally intended, that the joint committee, authorized by the societies which it represented, tendered the work to the American Pharmaceutical Association as a nucleus for the construction of a National Formulary. This was done at the annual meeting held in Pittsburg, in 1885.

The American Pharmaceutical Association having accepted the gift, a committee was appointed to prepare such a work, and as a first result this committee presented at the next annual meeting, held at Providence, R. I., in 1886, a preliminary draft for a National Formulary.

It comprised whatever the committee had been able to gather, either from existing formularies, from its own labors, or from the special contributions of individuals or societies.

This draft showed more forcibly than could have been done in any other manner, how serious the existing evil was, and at the same time how difficult would be the task to bring into harmony the conflicting views and customs.

For the purpose of enabling the committee to accomplish this task with better expectation of success, it was enlarged by the addition of one member from every State Pharmaceutical Association in the United States and Canada.

The committee thus constituted, two of the thirty-five members coming from the Dominion, represented the best element in the domain of Pharmacy. Two years later, in 1888, the work was given to the public.

So much for a brief historical sketch of the National Formulary.

Some reflections may now be indulged in, as to the causes making it necessary, and the means to be employed for its more general use by both physician and pharmacist.

My experience and observation in a limited way leads me to the conclusion that the average physician is unfamiliar with this work, and, to a certain extent also, that of the United States Pharmacopœia. This may account in a measure for his readiness to prescribe any new remedy offered, and his ready acceptance of the extravagant statements made in their praise we must attribute to human

credulity. Alas! the pharmacist has proven himself only too willing to act as distributing agent and middleman in dispensing medicinal compounds of someone else's manufacture. Is this owing to a lack of enterprise, or a lack of ability, or both?

Induced by the large profits to be secured, the unbounded activity on the part of the manufacturers, who aspire to instruct and aid physicians in their practice, is only equalled by the lavish praise and recommendation of formulas (someone's favorite prescription), to say nothing of the teeming pages of nostrum advertisements constantly found in the medical journals. The American Medical Society, at their last meeting, characterized in the severest terms the prostitution of the pages of their official journal to such base ends.

A physician's practice must be intricate and complicated to a degree, if he cannot find in the U. S. Pharmacopœia and National Formulary remedies to meet all his demands. The physician and pharmacist are working together in a worthy cause and must of a necessity be mutually helpful. If we fail to inspire our co-laborers with confidence in our ability as pharmacists, it is because we have not measured up to our opportunities. The latest editions of all the text-books in the druggist's library, together with some of the excellent pharmaceutical journals now published at so small a cost, not only furnish us with the weapons of proficiency, but create an impression on the mind of the physician only equalled by that of a well-appointed laboratory. Besides, if the physician accepts the aid of the manufacturer in his practice, he would not refuse the efforts of the local pharmacist in that direction, were they offered. Let us prove ourselves such competent pharmacists that there will be no question in the mind of any of our physicians as to our ability to prepare any remedy to meet any special case. We can best make our doctor patron acquainted with the merits of the National Formulary by placing in his hands a copy of the work, and would it not be a good stroke of business to do so? We may expect, in the near future, an issue of a revised and enlarged edition.

The present condition of the druggist is in many cases a struggle for existence, and the outlook for the future points to a survival of the fittest.

His only hope is in producing, manufacturing, everything in his line which affords a margin of profit—not only the pharmaceuti-

cals and simpler chemicals, but all of those household remedies for which there is always a demand. Let his laboratory command more of his time, thought and attention than his soda fountain.

Let us take counsel of the methods of the manufacturer. Let us adopt his plan, and present to our physicians samples of National Formulary products. This is one of the ways, at least, in which it can be made to serve the purpose of its publication.

Will you try it?

THE "CUTTER" AND THE REMEDY.

By J. H. Redsecker, Lebanon, Pa.

Read before the Pennsylvania Pharmaceutical Association, June 14, 1894.

The druggist, dealing as he does in medicines and medical appliances, seems to be the natural channel for the distribution of proprietary remedies. The retail prices of these goods are fixed by the manufacturer, and the public have willingly paid the established prices without murmur or complaint. When we remember that many of them are slow sellers, that they must be kept and are often dead stock on the dealer's hands, the margin of profit they have afforded was none too much. Within recent years, however, the cutting of the prices of these preparations has been inaugurated, and that it has been an injury to the trade is beyond question, as druggists have been compelled to handle this class of goods without any margin of profit whatever.

That there must be legitimate profit in all business will be readily admitted, for without it the business man could not live, pay his clerks, his taxes and the obligations he owes to his family. When some of our inventors succeed in discovering a way by which we may dispense with the "butcher, the baker and the candlestick maker," not to say other necessary craftsmen, may we hope to do business without profit and sustain life.

Various plans have, from time to time, been proposed to prevent cutting in prices of these so-called patent or proprietary medicines, but thus far without producing the desired results. To suggest a remedy now seems almost a hopeless task. The old adage, "that fools rush in where angels fear to tread," may find a parallel in the task I have undertaken in proposing a remedy for this evil of cutting.

We are assured by our friends, the wholesale dealers, that even with a margin of ten per cent. profit which the rebate system gives them on this class of goods, they are handling them at a loss; and we do not doubt their statements. If this be so when the sales run up into the tens of thousands of dollars and where a margin of ten per cent. yields quite a large return, how much greater is the loss of the retailer whose sales are but small and who is compelled, through this cutting of prices, to sell them at actual cost? You may ask why does he handle them? Simply because he is compelled to do so. People come to his store for them, and when there possibly purchase something else. If he does not keep them, they will not come to his place at all and the trade he may have in other lines of legitimate pharmacy will be lost to him. Hence, he keeps them, not from choice, but from necessity.

That the many plans proposed to overcome this evil have not been successful, is due to several causes, not the least of which is the indifference of some of the manufacturers, if not their quiet encouragement of the "cutters;" for no matter at what price the goods are retailed, they get their full prices for them. Then, too, we have some of the jobbing trade who are only too glad, despite all efforts to the contrary, to supply the "cutter" in the hope of securing his general trade and thereby making some profit out of him.

That many of these preparations are worthless, not to say harmful, is unquestioned, and that by skilfully worded advertising they lead to many imaginary diseases and injurious dosing of the system, is an indisputable fact. There is no doubt the general health of the public would be improved were there a disuse of these patent nostrums, many of which are compounded by persons who have no medical or pharmaceutical knowledge, and a return to the old practice of consulting an intelligent physician and following his advice.

Instead of making our stores the repositories for the thousand and one nostrums of which we know absolutely nothing, the abolition of them would relieve us of much unemployed capital and bring back pharmacy to its legitimate channel and be a positive benefit to the pharmacist, the physician and the public.

It is my purpose to present two propositions for the cure of this cut-rate evil, and whether you agree with me or not, if I but set you to thinking, and eventually to acting, I shall have accomplished

something and the preparation of this paper will not have been in vain.

First: We should endeavor, by national legislation, to so amend our trade-mark law as to give no proprietorship in medicines or medical preparations. I believe this is the case in France. When this is done we will not have anyone adopt fanciful names for old and well-recognized preparations, and endeavor to prevent their manufacture by others. Nor will we have two or three well-known chemicals combined, and foisted on the public at a price twenty times their actual cost. A patent covers a period of fourteen years, but a trade-mark, like Tennyson's brook, goes on forever.

My second proposition is, to secure, by State legislation, the enactment of a law making it an offense, punishable with fine and imprisonment, or either or both, for any person to sell, or offer for sale, any so-called patent or proprietary remedy, the sworn formula of which is not registered with the Secretary of the State Pharmaceutical Examining Board, which shall be open to inspection, unless such preparations, under certain restrictions, are prepared by a citizen registered under the State Pharmacy Law. When we have legislation such as is here indicated, may we hope to place pharmacy where it properly belongs, and we shall have the dawning of a new era for the pharmacist and a benefit to the public which they will learn to appreciate more and more as the years roll around.

The following is the text of a State law, such as I have outlined:

AN ACT

To prevent the sale of so-called patent or proprietary medicines within the State of Pennsylvania, unless the formula of the same is registered with the Secretary of the State Pharmaceutical Examining Board.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in general assembly met, and it is hereby enacted by the same,* That it shall not be lawful for any person or persons whatsoever, to sell or offer for sale within this Commonwealth any secret nostrums, proprietary or so-called patent medicines, unless the formula of such preparation or preparations, duly attested under oath, be first registered with the Secretary of the State Pharmaceutical Examining Board, who shall receive a fee of twenty-five dollars for each registration, one-fifth of

which shall be for the use of the said Secretary, as compensation, and four-fifths for the use of the said State Pharmaceutical Examining Board; *Provided*, That nothing in this Act shall prevent any pharmacist, who is a resident of the State, and registered under an Act, entitled "An Act to Regulate the Practice of Pharmacy and Sale of Poisons, and to Prevent Adulterations in Drugs and Medicinal Preparations in the State of Pennsylvania," approved May 24, 1887, and its several amendments, from preparing and selling any remedy or remedies, the sales of any one of which do not exceed five hundred dollars per year.

SEC. 2. Nothing in this Act shall prevent any person or persons from manufacturing or selling any proprietary or so-called patent medicine when the same is shipped outside of this Commonwealth.

SEC. 3. Any violation of any of the provisions of this Act shall be a misdemeanor punishable by a fine not exceeding five hundred dollars, or imprisonment not exceeding one year, or either or both, at the discretion of the Court. And it shall be the duty of any public prosecutor in any county of this Commonwealth to see to the enforcement of this Act.

SEC. 4. This Act shall go into effect on the first day of January next succeeding its passage.

SEC. 5. Any Acts or parts of Acts inconsistent herewith are hereby repealed.

CAN WE MODIFY THE ACRIDITY OF GUAIAC?

BY WM. B. THOMPSON.

Read before the Pennsylvania Pharmaceutical Association, June 14, 1894.

For a violation of the laws of our physical being we pay a two-fold penalty. We suffer an indisposition, an ailment or a malady, as the case may be. This is, of itself, hard enough to bear, and demands fortitude and submission, but when the sufferer is told that superadded to his weight of misery will be the administration of certain periodical doses of a distasteful stuff called medicine, the cup is, indeed, full, and the punishment seems adequate to secure a thorough repentance.

Numerous and very ingenious, indeed, have been the expedients by means of which it has been sought to disguise, to conceal and to obtund the bitter, the acrid and the nauseous, and the art of the

apothecary has been prayerfully invoked to make at least one of the tribulations of illness more easy of endurance. The honesty of duty, too, has been sorely tried, at times, under this appeal, and the bitter sometimes omitted from the cup to that extent that it has no existence there save in name. But as it has been declared impossible to construct a silken purse out of the substance of a sow's ear, so likewise the natural fetid odor and rank taste of a repulsive drug to become a palatable thing must be so transformed in its character and identity as to detract seriously from its usefulness. But, nevertheless, the fiat has come from the chamber of sickness, and the ministers must strive to obey. The physician looks to his henchman, the apothecary, to prepare his draughts, and that patient investigator of methods, known and unknown, seeks in his granule and parvule, with its environment of tinted sugar, a solution of the problem. Art has made wondrous strides in all the numerous laterals of pharmacy; skill in mode of preparation, in form of presentation, robs many an otherwise detested thing of its natural repugnance. Many a boon to the pangs of suffering mortals is to be found in the present domain of elegant and advanced pharmacy. But our query has to consider a substance so positively intractable in its physical composition as almost to defy ordinary methods to overcome it. Fortunately, in medicine, it is not a "sine qua non," and, perhaps, it rather belongs to a previous period when medication consisted wholly in crude substances in form as nature supplied them. So that it may be said that an enforced recourse to other and more acceptable substitutes has relegated guaiacum largely to a rear rank of remedies.

There is no function of the physical organization, especially of man, of such extreme delicacy and sensitiveness as are those of the organs which convey the sense of taste. Those numerous papilla, chiefly of the tongue, guard like so many alert sentinels the approach to that important repository, the stomach, and give instant warning when any foreign invader approaches. Remonstrance, in which case, instead of bristling bayonets, is shown in shrugged shoulders and wry faces, final submission being always accompanied with a protest. The guaiac resin, for it is a misnomer to call it a gum, consists mainly of resin, combined with an acid analogous to or identical with that of benzoin. This knowledge of its composition reveals its character, that of an acrid substance

developing after contact in the fauces, a burning persistent taste with a sensation in the affected parts of a surface roughened, or even excoriated. In just how far the physiological effects of medicines must be tolerated in order to secure their fullest utility, is a question we are hardly prepared to discuss here. Sheathing the mucous secreting surface with a demulcent adjuvant, seems to present as the first suggestion, for it is necessary that for topical or localized application we should have the resin in as impalpable a powder as is attainable.

If time was not a limited quantity, I should like to diverge here for more than a moment or two, to speak of the importance to the manipulator of drugs of studying each particular substance or product as it comes into his hands, in order to acquire the fullest knowledge, not only of its properties, therapeutically, but of its characteristics physical, and other composition. It is this knowledge which gives us the power over the material to use it and combine it. Who but the potter can mould and shape the otherwise senseless clay? In dealing with our guaiacum the first thought which suggests is to interpose some sheathing substance or to so envelop this acrid property, that its release shall be by unappreciable degrees and thus obtunded. The illustration of this suggestion is here presented in the form of a compressed troche or lozenge, each containing two grains of the gum of guaiacum. Petrolatum and chocolate are here the carriers of the medication, and the solution is effected in the fauces in such a manner that although the peculiar pungency is perceptible, the contact is not disagreeable. Doubtless in more skilled hands than mine, the principles here employed could be made to yield yet more satisfactory results, and a pursuit of the subject may prove attractive to others.

Our query has, of course, more to do with the topical or localized effect than with that of its general therapeutic action on the internal economy. Still, it will be interesting to note, at this point, the efforts which have been made to obviate the objections which have ever existed to the uses of this substance. The range of preparations into which guaiacum enters as a chief component is not great. A partial saponification was early resorted to to secure greater solubility, as well as a modified action. This is instanced in the "Soap of Guaiacum." Acting upon this, Dr. Benjamin Dewees, an honored member of a former regime of eminent medical practitioners,

formulated that alkaline tincture of guaiacum which to this day bears his name and authorship.

Then the framers of the Pharmacopœias adopted into our national codex, first, the simple alcoholic solution, a tincture, and then the ammoniated alcoholic tincture, and these two latter have continued in official sanction to this day. A reference to numerous prescription files would doubtless show but limited uses of these preparations, and we may again turn to the immediate object of our query.

In my remarks upon this subject I have raised the question as to how far the property characteristics, which are peculiar to many drugs, and these most pronounced and definite in odor and taste, can be changed or modified in their action upon our sensible organs without jeopardizing in a positive degree the very properties which decide their value.

TABLET TRITURATES.

By D. J. Thomas.

Read before the Pennsylvania Pharmaceutical Association, June 14, 1894.

The past decade marks a new era in pharmaceutical history. Never since its inception has pharmacy made such rapid, progressive strides as within the last ten years. It has kept pace with the developments in other lines of art and science, and the discoveries of the inventive pharmaceutical mind will pass into history that shall occupy a conspicuous place in the archives of pharmaceutical literature.

The demand for elegant pharmaceutical preparations has resulted in the introduction of a class of products known as Tablet Triturates, or, more properly, Triturate Tablets. Whether it may consistently be maintained that they are entitled to a place in the list of "elegant pharmaceuticals," a difference of opinion exists; many claiming that they cannot lay claim to a position in that class. Something should be known by the pharmacist as to the position Triturate Tablets occupy, the extent of their use, what prompted their introduction, and the position they have finally attained. This has given rise to the queries: "To what extent are physicians employing Triturate Tablets in their practice, and with what degree of success? Has the introduction of these diminished the prescription

business with the average pharmacist?" (1) What are Triturate Tablets? The writer finds they are simply mixtures or triturations of an active, combined with an inert or inactive substance—such as sugar of milk with an adhesive powder moistened, made into a mass of proper consistency, and forced into suitable moulds, usually by means of a spatula, and formed thereby into discs or tablets. The finished product affords a convenient means of administering drugs usually given in pill, powder or liquid form without resorting to the necessity of measuring or weighing, and apparently possessing an advantage over pills, inasmuch as their solubility or ready disintegration by the stomach is not impeded by an outward coating, as in the case of coated pills or capsules. To the country practitioner, with cumbersome saddle-bags and medicine cases, they are a boon and great convenience, overcoming the necessity of weighing, measuring or subdividing. He now has a line of preparations of known strength, inexpensive and portable, and at the same time yielding results that are determined by their intelligent use.

The history connected with their introduction is rather meagre. They were first described by Dr. Robert M. Fuller, of New York City, in an article published in the New York Medical Record, of March, 1878. The slowness of action of coated pills culminated in the suggestion for the manufacture of tablets, the writer of the article claiming many points of advantage over the coated pill. In point of solubility, Triturate Tablets are a success. Owing to their porous, spongy character, the fluids of the stomach act upon them promptly, resulting in a rapid disintegration, and consequently a quicker action might reasonably be expected therefrom.

Thus far, the country practitioner is the largest consumer or distributer of Triturate Tablets. This fact is sustained by evidence and data gathered from prominent manufacturers of these products. There seems to be a growing disposition, however, on the part of physicians in the more densely populated towns and cities to employ Triturate Tablets in their practice, as well as the physician who, by reason of his removal from close proximity to the pharmacy. However prejudicial the pharmacist may be towards the introduction of a line of products that might in anywise alienate the prescription business from his hands, he is forced to admit that the Triturate Tablet has already attained a formidable attitude. It is well to estimate the probable position Titurate Tablets might

occupy ultimately; and if their use is to be encouraged, what will eventually be the effect upon the prescription business? As previously stated, the Triturate Tablets are most largely employed by the country practitioner, and as his course does not materially affect the prescription business of the pharmacist, the movements of the city physician do most vitally concern him. In many instances it was found that the city physician purchased liberally of the tablets, and supplied them gratuitously to his patients, thus necessitating an outlay of money for which he received no return. There seems to exist a difference of opinion among physicians as to the wisdom of this course. Although it brings the physician in closer touch with the patient, rendering the latter dependent upon the former for his supplies of medicine, it involves the gratuitous disposition of the physician's stock. In some instances the plan has been discontinued. It is maintained by many pharmacists that the popularity of tablets is due to a fad, and like many other things that promise for a time to become staple, they will have their day and eventually fall into disuse. However true this prediction may be, time will prove its accuracy. By those who endorse and advocate their use, it is claimed that their popularity is only in its infancy, that they have not yet even attained to the medium of their ultimate universal adoption.

Although Triturate Tablets possess, in many instances, an obvious superiority over pills, they are, however, objectionable in others. For example, in exhibiting the bitter substances, such as Strychnine, Quinine, Aloes, etc. Owing to the absence of a coating, it is quite impossible to swallow a tablet containing any of the bitter medicaments without leaving some indication of its bitterness upon the sense of taste. An occasional objection is found in some instances where the active constituent of the tablet is crystalline in character; owing to the recrystallization in the tablet, it becomes hard, and consequently rendering it difficult to reduce to a powder unless subjected to extraordinary pressure, thus destroying, to some extent, one of the advantages claimed for it. Again, if the quantity of adhesive matter introduced into the tablet for the purpose of maintaining its form and holding it together has been used in excess, its ready reduction to powder is impeded. Care, therefore, should be intelligently exercised in their preparation, or, again, their superiority over coated pills becomes weakened. From personal observation, it must be

admitted that in proportion to the increased demand for Triturate Tablets there appears to be a decreased demand for pills, capsules, and powders. While there still remains an active demand for pills, powders are being rapidly supplanted by tablets. It is not claimed by the writer that this condition exists wherever tablets have been introduced. The reverse of this condition may exist in many sections.

It is a settled fact that Triturate Tablets have come to stay, at least until some better means has been discovered that will accomplish the same end. As there is no secrecy about the "modus operandi" for the manufacture of Triturate Tablets, they can be produced by the average pharmacist through the employment of ordinary skill and the utensils he now has at hand, *i. e.*, with mortar and pestle, glass or porcelain slab, spatula, and a few sets of hard rubber or metallic moulds, he finds himself equipped for the production, on a small scale, of any tablet that the large manufacturer is capable of making, with the exception, as in all other things, that they can be made on a larger scale at a greatly reduced cost. The possible danger of ultimate injury to the prescription business can only result where the pharmacist fails to recognize the preference the physician is disposed to show towards the Triturate Tablets, and refuses to supply them when prescribed.

ON THE DETECTION OF EXHAUSTED GINGER.[1]

By A. H. Allen and C. G. Moor.

Since the publication of the paper of Dr. Dyer and Mr. Gilbard in The Analyst for August, 1893, purchases of ground ginger under the Sale of Food and Drugs Act have been made in various parts of the country. In order to report on such samples to the best advantage, we have made a series of experiments on various specimens of ginger, and have collected data of considerable interest.

Taking advantage of the experience of Dyer and Gilbard, we have in each case determined the proportion of soluble ash, by which we mean the percentage on the original ginger which is dissolved out on treating the total ash with boiling water. In practice, perfectly good results are obtainable by regarding as the "soluble

[1] The Analyst, 19, 124.

ash" the difference between the weight of the total ash and the ash insoluble in water. The aqueous solution can, of course, be used for determining the alkalinity, or the actual potash present.

Dyer and Gilbard found the proportion of soluble ash from genuine ginger to vary from 1·9 to 3 per cent., with an average of 2·7, while Mr. W. C. Young found in seven authenticated samples of ginger a range of 1·8 to 2·6 for the soluble ash. Figures for five samples of genuine ginger of unknown origin have been communicated to us by Mr. T. H. Pearmain, and show soluble ash ranging from 1·8 to 2·7 per cent., calculated on the moisture-free samples. The following are Mr. Pearmain's figures:

	1.	2.	3.	4.	5.
Total ash, less sand, ...	3·1	3·9	3·7	5·0	4·5
Ash soluble in hot water, ...	2·2	2·7	2·4	1·8	2·0
Fixed ether extract, ...	3·2	3·0	2·5	5·0	4·2
Alcoholic extract after treatment with ether, ...	2·7	3·1	3·4	2·9	3·0

These results bear out in the main those of Dyer and Gilbard.

Contrary to the general impression, for the manufacture of essence of ginger an aqueous or very dilute alcoholic liquid is employed. The use of any but very dilute spirit, 75° U. P., causes the solution of a considerable quantity of resinous matter, which is precipitated when the essence is subsequently diluted with the water of the ginger-beer. Hence, the use of alcohol in anything more than the most moderate proportion is neither necessary nor desirable, and the more so as the greater part of the pungent and flavoring principle of ginger is readily extracted by cold water. Exhausted ginger having already been subjected to treatment with water or a slightly alcoholic solvent, the soluble portions have been to a great extent removed, and hence such ginger yields a lower extract than a genuine article. The aqueous extract contains a considerable quantity of soluble salts of organic acids, and the ash is correspondingly deficient in soluble salts, and especially in compounds of potassium. In consequence of the presence in ginger of calcium salts soluble in dilute alcohol, the ash left on igniting the proof-spirit extract often considerably exceeds the proportion of soluble ash. This curious fact is no doubt due to the conversion of these calcium compounds into carbonate by ignition, thus rendering them insoluble in water.

In the hope of finding a solvent which would dissolve the valuable portion of the ginger without affecting the objectionable resinous matters, we have examined the action of cold water, proof-spirit, and rectified spirit on a number of samples of ground ginger of commerce. The following results were obtained by Mr. Haywood Court. Sample *A* was known to be genuine, but most of the others were purchased under the Sale of Food and Drugs Act, and some of them were ultimately admitted to contain an admixture of exhausted ginger.

	A.	*B.*	*C.*	*D.*	*E.*	*F.*	*G.*	*H.*	*I.*	*J.*	*K.*	*L.*	*M.*
Total ash,	3·54	5·23	4·41	5·15	5·53	7·69	5·39	3·61	3·19	2·72	3·52	3·29	4·9
Ash soluble in hot water,	2·36	2·59	2·22	2·57	2·87	2·36	—	1·24	1·45	0·69	1·11	0·97	1·1
Alkalinity of soluble ash as K_2O,	0·96	0·96	0·29	0·13	0·15	0·20	—	0·27	0·20	0·23	0·23		
Extracted by rectified spirit,	7·33	7·70	7·37	6·22	8·45	—	4·65	7·09	—	6·83	7·86		
Extracted by proof spirit,	21·64	20·80	10·70	10·45	7·55	21·60	5·85	13·00	16·08	11·78	12·38		
	20·25	18·58											
Containing ash,	—	2·73	—	—	—	—	—	2·30	2·47	1·91	2·24		
Extracted by cold water,	14·57	13·16	14·95	14·55	14·50	14·60	8·14	8·33	9·78	8·51	7·18	8·08	7·9
Extracted by subsequent treatment with proof spirit,	9·77	9·59	—	—	—	7·49	—	8·35	8·51	7·76	8·42		
Extracted by subsequent treatment with rectified spirit,	1·11	1·28	—	—	—	1·31	—	1·58	0·98	1·28	1·71		
Total extract by three solvents used consecutively,	25·45	24·03	—	—	—	23·40	—	18·26	19·27	17·55	17·31		

From these results it appears that the percentage of matter extracted either by proof or rectified spirit affords very little information, the large proportion of resinous matters yielded both by genuine and exhausted ginger masking any minor differences. It is true that Dyer and Gilbard consider that the proportion of matter extracted by alcohol after complete removal of the ethereal extract is a valuable item to the analyst; but as they found it to range from 2·1 to 3·8 per cent., while in the exhausted samples it varied from 0·8 to 1·4 per cent., it is evident that any estimate based on this datum must be of a very rough kind.

On the other hand, the proportion of extractive matter yielded to cold water seemed very encouraging, since the amounts dissolved in most cases followed closely the proportions of soluble ash. The following figures were obtained by Mr. R. Waterhouse by the analysis of genuine ginger of known origin, supplied to us by the kindness of Mr. W. Chattaway, of Apothecaries' Hall:

Origin of Ginger.	*N.* Jamaica.	*O.* Jamaica.	*P.* Jamaica.	*Q.* Jamaica.	*R.* Jamaica.	*S.* Cochin.	*T.* Cochin.	*U.* Cochin.	*V.* African.	*W.* African.	Average.
Moisture.	11·26	10 98	13·95	12·76	13·96	10·64	13·50	13·23	15·97	13·70	13·00
Total ash, ...	—	—	3·90	3·29	3·45	—	3·81	3·62	3·66	3·90	3·66
Soluble ash.	1·70	1·41	3·05	1·75	1·71	1·71	2·03	2·04	2·28	2·41	2·01
Cold-water Extract, . .	15·65	13·25	14·40	12·25	11·85	13·00	8·65	11·65	10·80	10·10	12·12

Somewhat closer figures are obtainable by calculating the results on the moisture-free samples, but even then the figures show a good deal wider variation for the soluble ash than was observed by Dyer and Gilbard, while the cold-water extract also shows a wider range than we had expected. Sample *T* presents the peculiarity of yielding the average proportion of soluble ash, but an abnormally low water-extract. On the other hand, sample *O*, which gave the lowest soluble ash, yielded a cold-water extract above the average.

It appears, therefore, that neither the soluble ash nor the cold-water extract affords by itself a perfectly safe means of deciding as to the presence of exhausted ginger, but by a combination of the two data it is possible to arrive at a more definite conclusion.

More extended observation is needed before anything like a definite limit of composition can be assigned to genuine ginger, and hence it is desirable to leave a wide margin when stating the proportion of exhausted ginger present in a sample. But, meanwhile, there is no difficulty in ascertaining the presence of the adulterant when it has been added in such quantities as to bring the soluble ash down to something like 1 per cent., and the cold-water extract to less than 8 per cent.; and this is the case with not a few gingers in the market. The adulteration has been admitted in several cases of this kind which have come under our notice.

We have pleasure in acknowledging the valuable assistance rendered by Mr. H. Court and Mr. R. Waterhouse in making the experiments above recorded.

Dr. K. J. Bayer claims to have discovered a new element in French beauxite. —(*Chem. Zeitung*, **18**, 671).

THE BENEFICENT SOCIETY OF AMERICAN APOTHECARIES OF THE STATE OF PENNSYLVANIA.

By William B. Thompson.

Read before the Pennsylvania Pharmaceutical Association, June 15, 1894.

The Pharmaceutical Association of the State of Pennsylvania has been now existent 17 years. During this time it has progressed in all the objects and purposes of its organization. It has maintained an increasing enrollment of members. The usual causes of decimation have not materially lessened its ranks. Active, personal interest has at all its sessions been conspicuous. Its work and influence have extended to other and similar organizations, and its zeal has proven a stimulus to our brethren elsewhere, to prosecute similar labors in other fields. It has sought to give, through the copious literature of its many papers on scientific and practical subjects, information of value to its members. In this way education has been diffused among a large number. The social features of an organization of its kind have created many personal friendships, and cemented a bond of fraternal union, based upon the evidences of unselfish motives, and the courtesies and amenities of a polite intercourse. It has carefully guarded legal privileges and sought to throw around the prosecution of a responsible business the rights and dignities which should pertain to it. But one essential act yet remains unaccomplished. It should identify itself with some well-formulated scheme of benevolent purpose, so that its ministrations may be characterized by the exercise of humane feeling, and each and every one who may by reason of fortuitous circumstance become its beneficiary, have reason to feel that the Pharmaceutical Association of the State of Pennsylvania is a living, moving, acting instrumentality, not for the promotion of selfish interests merely, but for good and virtuous objects as well.

The formation of Guilds, which were associated bodies of craftsmen and others, dates far back in the industrial and commercial history of England. For the purpose of effecting common objects by weight of numbers and of influence, to protect material and mutual interests, and to regulate the status of particular occupations, constituted the original design; the value and force of combined effort was then well understood, as well as the utter inability of single individual influence to right wrong successfully or combat error.

From these sprang the aggregation of numbers known as Societies, Orders, and organizations under various titles, the outgrowth of which has extended into all civilized communities, and has become not only a local power, but, when forces are intelligently marshalled, a potent factor in shaping public measures and controlling policy. Our topic here, however, has to do with a particular feature, which may either become a distinct purpose or may be incorporated with the general objects of such associations. This is a plan of humane and benevolent intent, and has become a permanent auxiliary or the sole and single purpose of united bodies. Therefore, the scheme of a "Benevolent Society of American Apothecaries" is new only in name and title, the principle having long been well established. The subject is one which deserves consideration, and under determined effort might readily be expanded into a far-reaching method of beneficence. One impediment would confront at the outstart, and that is that there never has been manifested among the body of apothecaries any tendency towards fraternization, if we except certain organizations to promote trade interests, but no conceptions or appreciation of higher plane of moral purpose has ever characterized the representatives of this calling. The history of all unendowed benevolent enterprises emphasizes the fact that these are of slow and patient growth. There is nothing to discourage, therefore, an effort at beginning. Faith and labor can overcome all ordinary difficulties, and where these are stimulated by a knowledge of a worthy and virtuous object to be obtained, hope will never languish. Under our free laws of unrestricted trade, the increase in occupations goes on in large ratio, and that of the apothecary is certainly no exception. Its votaries may be found everywhere, in large and small communities, in an excess of numbers greatly exceeding the possibilities of prosperous business existence, yet each individual, free to exercise his choice, adds one more to an already over-augmented number. Failure to realize expectation and consequent disappointments must multiply in the same ratio, and one day there comes a realization that labor, though long-continued, patient and faithful to a degree, has yet been in vain. Sad is it for him whom this day finds unprepared. The occupation of the apothecary is somewhat peculiar, in that it seldom leads to the adoption of other employment, and once embarked in, the individual clings and settles into a seemingly fixed groove and purpose. This, too, often under circum-

stances which the observer plainly notes are the most discouraging and unsatisfactory. It may be that the not over-ambitious mistake it as an occupation of comparative ease, imposing nothing which is exacting or imperative; but even if so, it is still the failure and no less a labor unrequited. The knowledge of this often comes too late in life's experience to retrace steps, to rectify or recall. This result is not exclusively the fate of the apothecary, but is likewise met with in all the other avenues of business life. Conditions, however, for the past few years have been adverse to the prospects of the apothecary. The shifting uncertainties of mercantile life—controlling causes which cannot be averted—the vicissitudes of fortune, the errors of judgment, mistaken, the generous hand that helps another often ruined in the benefaction—all contribute in one way or another to make the sum of life's adversities, and these we all have to meet as best we can. How wise, then, to unite for mutual aid. When these adversities have swept in like successive, devastating tides, carrying away all that has been won by toil and accumulated by patience, surely such a lot appeals keenly to our most tender sympathies. The hand which bestows need not be seen, and the hand which now receives has, through the instrumentality of union, extended like benefactions to others; the spirit of pride is not, therefore, wounded, and that sensitive nature already sharpened by the fear of mortifying disclosure, not hurt even at the point of penury. Days will assuredly come to many a worthy brother now striving. when the weight of years and the shadows of the evening of life will begin to fall heavily on body and mind. Some of us will then be found unprepared to soften the asperity of want with the comfort of means, or to provide adequately against the adversities of poverty and helplessness out of resources too meagre. To such how consoling and timely would come the helping hand of benefaction—not seen, yet gratefully felt in the fulness of a generous bestowal.

NOTES ON PRACTICAL PHARMACY.

By Joseph W. England, Ph.G.

Read before the Pennsylvania Pharmaceutical Association, June 14, 1894.

"C-C" Cough Mixture.—Under this name, a cough mixture is very largely used in the phthisical wards of the Philadelphia Hospital. It has, in each fluid drachm, the following: Codeine sulphate,

one-eighth grain; diluted hydrocyanic acid, two minims; spirit of chloroform and mucilage of acacia, each, fifteen minims, and syrup of wild cherry, a sufficient quantity to make one fluid drachm. Dose: one fluid drachm.

Distilled Extract of Witch Hazel.—The writer has been informed, on good authority, that the percentage of alcohol in commercial distilled extract of witch hazel is not necessarily an index of its value, for the reason that some dealers buy the cheaper aqueous distillate from the distiller and add alcohol. The only proper product is had by distilling the fresh twigs with a mixture of alcohol and water, whereby a greater quantity of volatile oil is brought into solution, than by distillation with water alone.

Syrup of Wild Cherry.—In making this syrup, more especially in the summer season, when fermentation takes place readily, it is advisable to add some of the sugar to the percolate as soon as possible, to prevent change. The pharmacopœial formula of 1870 contained no glycerin, that of 1880 ordered five per cent., and that of 1890 fifteen per cent by volume. This last increase seems excessive. The greater the percentage of glycerin, the greater the amount of tannin extracted, up to a certain point. It is a question whether this increased astringency in the syrup is therapeutically desirable.

Blaud's Pills (*Improved*).—The usual formula for this much-used unofficial ferruginous preparation of ferrous sulphate, potassium carbonate, tragacanth and glycerin, can be much simplified and made to yield a more permanent product by using the following formula: Potassium carbonate, one-third grain; potassium sulphate, two grains, and mass of iron carbonate, three grains, in each pill. Little or no excipient is required. The pills flatten somewhat on keeping, and are best dispensed in gelatin capsules. They are small in size, and do not become hard and reddish-brown on fracture, as do those made by the old formula.

Ointment of Ammoniated Mercury.—This ointment is most difficult to make by the official process and secure entire freedom from "grit." The best method is, for example, to finely powder in a mortar 48 grains of the mercury compound and beat it into a smooth paste with 12 grains of glycerin; and make the official ointment from this, as wanted, by admixing one drachm with seven drachms of cerate. In this connection, criticism may be made

against the use of alcohol, as in the 1880 Revision, or olive oil, as in the 1890 Revision, to render veratrine smooth in making veratrine ointment. A small quantity of glycerin is better. Glycerin is also of superior utility in softening extract of belladonna prior to making it into ointment; the Pharmacopœia specifies diluted alcohol.

Mucilage of Sassafras Pith.—This mucilage is best made by beating the pith, in a wedgewood or porcelain mortar, with a small quantity of *sterilized* water until it gets pasty, expressing through cheese-cloth, returning residue to mortar, adding more of the water and continuing as before. In this way, in a short time, a dense and syrup-like mucilage may be had, very different in physical appearance from the watery product gotten by following the official directions of simple maceration in *water* for three hours and straining.

As this preparation is used as an emollient in inflammatory conditions of the eye-ball and mucous membranes, it is obvious that the greater the percentage of mucilage in solution, the more soothing it will be. In these days of asepsis, the use of *water* in making the official mucilage is an unpardonable sin in the eyes of oculists. Sterilized water, *i. e.*, water or distilled water boiled and cooled, only should be employed. Three hours' time in making the preparation is far too long, when it can be better done in a few minutes.

Hope's Camphor Mixture.—This old preparation has been gradually increasing in use, and is recognized by the National Formulary under the name of Mistura Camphora Acida, which authority follows the formula of Ellis (Griffith's Formulary, 1866, p. 160) in using *nitric* acid. The original formula of Hope, however, specified *nitrous* acid. The formula we have used for years is: Fuming nitrous acid, 2 fluid drachms; tincture of opium, 80 minims, and camphor water, 1 pint. Parrish's Pharmacy (1884) refers to the mixture as follows:

"This formula was originally made public after twenty-six years' experience of its use in dysentery, by Thomas Hope, Esq., surgeon, Chatam, in the Edinburgh Medical and Surgical Journal, January, 1824. Dr. Hope was in the habit of directing *nitrous* acid, *not* nitric, which he says he has 'not found to produce any good effect.' I have been careful to follow his formula literally, and have for the purpose prepared nitrous acid by the process given on p. 200;

though nitrous acid passes into nitric acid by contact with water, this reaction does *not* occur in the presence of an excess of nitric acid. Few remedies have a more general and widespread reputation than this; it is now frequently prescribed, more than eighty years after its virtues were originally discovered."

The nitrous acid used is known in commerce as fuming nitrous acid or fuming nitric acid. It is really nitric acid holding in solution nitrous acid fumes, which latter may be wholly removed by boiling, or largely by simple and continued exposure to air; so that the commercial product varies considerably in strength of absolute nitrous acid.

Remington's Pharmacy (1885), p. 1027, specifies nitrous acid in the formula for this mixture, as does also the National Dispensatory of 1884 (p. 75) and 1894 (p. 76). Hope's Camphor Mixture is still largely used, at least with us, in summer dysenteries, and if Mr. Hope's contention as to the necessity of using only *nitrous* acid, *never* nitric, is correct, then the National Formulary decidedly errs in following the formula of Ellis and specifying the latter.

The objection sometimes raised as to the difficulty of securing good fuming nitrous acid can be met. The pharmacist can easily make his own nitrous acid, extemporaneously, from sodium nitrite and nitric acid, using quantities sufficient to yield the amount of acid in the formula, which is small. Messrs. Rosengarten & Sons state that sodium nitrite of the new official strength (97·6 per cent.) is readily obtainable.

Medicated Waters.—In the making of medicated waters—save those prepared by distillation or direct solution—the new Pharmacopœia directs precipitated calcium phosphate as the distributing medium in about the same proportion as that directed for magnesium carbonate in the 1870 issue. As was pointed out by the writer ten years ago (A. J. P., 1884, p. 65), in advocating the use of precipitated calcium phosphate for this purpose, it is essential, in order to properly distribute the oil, that the lime compound be used in *double* the quantity of magnesium carbonate usually employed, on account of its much less bulk. The official quantity of the lime compound should be 8 gm. to the 1,000 cc. of the medicated water, and not 4 gm., as directed.

It is best to add, as the Pharmacopœia directs, *all* the water to the admixed lime compound and oil before filtration. The practice

of some pharmacists adding only a *part* of the water, throwing on a filter and then adding further water, from time to time, to the contents of the filter until the required amount has filtered through, cannot result in as strong a solution as if the oil had been brought in intimate contact with all the water at once.

There is one detail whereby the official process can be greatly improved, and that is by using in place of the distilled water, *hot, boiled* water, *i. e.*, water boiled and cooled to a point just short of boiling. In following this practice, the writer adds the water to the admixed lime compound and oil, places it in a proper vessel, covers tightly and filters after it has stood for some hours, preferably over night.

The use of hot, boiled water has a number of very decided advantages. These are a maximum solution of the oil and an increased permanency of the water. Boiled water is far more germ-proof than the usual distilled water of commerce, which is believed to be, in some cases at least, simply condensed steam-waste.

Criticism may be made against the use of nearly boiling water for making aromatic waters, on the ground of loss of volatile oil, but practical experience will show that this loss is more apparent than real, that the amount of volatile oil lost by volatilization is insignificant in comparison with the greatly increased amount brought into solution.

PHARMACEUTICAL NOTES.

By Clement B. Lowe.

Read before the Pennsylvania Pharmaceutical Association, June 14, 1894.

Terebenum or Terebene has come into somewhat extensive use as a remedy for chronic bronchitis, and it is frequently an ingredient of cough mixtures, or is prescribed by itself.

On account of its slight solubility in water, and its somewhat unpleasant taste, it is best given in an emulsion.

The emulsion should be made by the addition of one drachm of powdered gum arabic for each fluid drachm of terebene.

The primary emulsion, consisting of gum and water, should first be carefully prepared and then the terebene should be slowly and carefully added.

The emulsion will be found quite a difficult one to make, the terebene being easily thrown out of solution.

Mustard Plasters.—The mustard plaster is one of the most important remedies kept in our pharmacies, and yet as far as I know none of the manufacturers have included in their directions that of wetting the plasters before using with only *tepid* water.

The acrid or volatile oils of mustard do not pre-exist as such in the seed, but are produced by the splitting up of the glucosides sinalbin or sinigrin, by the action upon them in the presence of moisture of the ferment called myrosin.

It is a fact that should be better known that myrosin is coagulated by water of a temperature of 140° F., and rendered incapable of action.

I have found that many people are under the impression that the plaster will be made the more active by dipping it into hot water, but the reverse is the case.

Syrup of Acacia.—It seems strange that the Pharmacopœia should have continued unchanged the formula for Syrup of Acacia.

In the Pharmacopœia of 1870 the syrup was made directly from the gum, and we had a fairly stable preparation.

In the last two Pharmacopœias it is ordered to be prepared from the mucilage, which spoils quickly, and the syrup thus made would ferment in a few hours, unless the mucilage was freshly prepared.

The formula of Mucilage of Acacia can be improved upon by the use of chloroform water of the strength given in the British Pharmacopœia.

If the chloroform is objectionable from a therapeutical standpoint, a few minutes' exposure to heat will thoroughly dissipate it.

The most convenient way of dissolving the gum is by means of a dialyser.

Adulteration of Belladonna Root.—This last winter, on examining some belladonna root, I was surprised to find present a number of large pieces of poke root.

As the former root is indigenous to Europe and the latter to the United States, and as the structure of them is entirely different, it could hardly have been an accidental adulteration.

The cork layer of the belladonna is of a very light brown gray color, while that of the poke root is of a yellowish brown gray and marked by very characteristic transversely elongated corky warts of a lighter color.

The transverse section of the former shows a fine black cambium

line, and the woodwedges, when present, are of a light yellow color, radially arranged; in the poke the wood tissue is whitish, and shows a decidedly concentric arrangement.

Camphor.—I have pleasure in calling to your attention an excellent article of camphor, made at the Sumitomo Refinery, Kobe, Japan, and imported by Smith, Kline & French Company.

It comes in boxes very neatly made of wood, pasteboard lined, containing one pound net by actual weight.

The style of package prevents evaporation, and being divided into ounce cakes there is no loss in retailing.

It is less translucent and crystalline than ordinary refined camphor, and is probably made by submitting powdered camphor to powerful pressure.

One part is perfectly soluble in 0·7 parts of alcohol, and sublimes without leaving any residue.

It seems probable that in many industries Japan is going to be an active competitor, not only with European nations, but also with our own.

Fluid Extract Triticum Repens.—The question is asked in Query 8, "What is the cause of the active effervescence which takes place when Fluid Extract Triticum Repens is added to a carbonate?"

If active effervescence occurs, I should think it due to fermentation having taken place.

The fluid extract is made by first percolating with boiling water, afterwards evaporating and adding 25 per cent. of alcohol.

As the medicinal constituents consist of three sugars, two of them directly fermentable, if too much time be taken in percolating and evaporating, there is apt to be some fermentation before the alcohol is added.

Bicycling.—I was much interested in an article on "The Bicycle in its Relation to the Physician," by Dr. S. Egbert, and think it worthy of a wide circulation.

I was pleased to find that his professional investigation of the subject coincided with my personal experience.

He claims that "if the wheel is properly adjusted to the rider, as far as weight, saddle, handle-bar and pedals are concerned, and above all an *erect posture maintained*, that cycling is one of the best forms of exercise attainable, developing the chest, increasing the lung capacity, and bringing into play the most important muscles of the body.

If bicycling is so beneficial to the physician, who ordinarily gets much more out-door exercise than the pharmacist, will it not be of greater value to the latter?

A well-known apothecary of Philadelphia, who has suffered since a lad from an injury to one of his legs, claims that in all those years he has never been absolutely free from pain until he took to riding a bicycle.

A prominent clergyman of the same city, who is quite a student, says "that the more he studies the more he has to ride to equalize matters," and further says, "who would for a moment ride in a carriage if possible to ride on a wheel?"

Some advice may be of value, especially to beginners.

Don't let your bump of self-esteem outgrow your bump of caution.

A clerk of mine learned to ride fairly well in one afternoon; on his second trip he did so well that he thought every one was looking at him, but, having to pass a wagon that provokingly kept in the middle of the road, he got nervous, wabbled, ran into the hind wheel, took a header, cut his leg to the bone, and was laid up for repairs for three weeks.

Don't overdo it, especially at the start; you will hear so much about century runs that you will be tempted to ride further than your strength will allow, and so will become exhausted instead of invigorated. Unless a daily rider, 15 to 25 miles of an afternoon will be amply sufficient.

REPORT OF THE COMMITTEE ON U. S. PHARMACOPŒIA TO MISSOURI STATE PHARMACEUTICAL ASSOCIATION.[1]

By Charles O. Curtman, Chairman.

The writer has the honor to report the following in regard to the United States Pharmacopœia:

The committee elected by the national convention for revising the Pharmacopœia, held in Washington, D. C., in May, 1890, has during the past year completed the work of the seventh revision intrusted to it, and in August, 1893, the first copies of the work

[1] Read before the Missouri Pharmaceutical Association, June 12 to 15, 1894.

were exhibited at the meeting of the American Pharmaceutical Association at Chicago, and an edition of 8,200 copies was placed upon the market. This supply was soon exhausted and was followed by a second edition of 5,000 copies, and again in 1894, a third edition of 5,000 had to be printed, and a large portion of these is already sold.

Altogether the reception of the work has been a favorable one both at home and abroad. Criticisms have been published in a number of journals, some of them censuring the committee of revision for introducing or omitting features, which were not in the power of the committee to control, as their action was limited by the instructions on the convention which elected the committee. Among the omissions especially censured was the non-introduction of a number of modern synthetic chemicals, such as antipyrin, phenacetin, sulfonal, etc., which are received into European pharmacopœias. Many of the members of the committee of revision were in favor of their admission, but the stringent rule, number 6, adopted by the convention, forbade this, and the only remedy for those who wish such preparations introduced will be that the delegates to the next convention give greater liberty of action to the committee they may then elect.

Another objection dwelt on by some critics was the failure of stating the doses of the remedial agents, or at least the maximum doses of very active and poisonous preparations. This question was also under discussion in the convention, and though no formal restriction was placed upon the committee of revision, the sentiment expressed in the convention was so unfavorable to the introduction of doses that it was not deemed prudent to contravene it.

As in all large publications, a number of misprints have happened and have been discovered too late for correction in the plates of the first edition. In spite of all care and the most painstaking proof-reading, such mishaps will always occur and are more liable to be overlooked where the authors of the book live distant from each other and from the place of publication. Unless the printing is to be unduly protracted, only a limited time can be given to reading the proofs, and this is much shortened when they are to be sent and returned by mail. In spite of many vigilant eyes, not only of the editor and the whole committee, but also of the outside assistants, a few errors were permitted to pass. Fortunately they were mostly

unimportant, such as each reader would readily correct when noticed, and a list of errata has been published to enable the purchasers of the first edition to correct them. The plates have at once been corrected so that the errors are eliminated from the later copies.

Since the publication of the Pharmacopœia the committee of revision has not been idle. Its active chairman, Dr. Charles Rice, with the consent of all of the members, has organized "Research" committees to engage in preparatory work in aid of the next revision. Thus far, four such committees have been organized:

Research Committee A. Subject, The feasibility of devising practical methods of assay for drugs containing no sharply defined proximate principles capable of being separated in a sufficiently pure state (such as ergot, digitalis, rhubarb, etc.).

Chairman: Dr. W. M. Mew.

Research Committee B. Subject, Revision of the description and tests of inorganic chemicals, including salts of inorganic bases with organic acids. Revision of the volumetric assays of the U. S. P. Study of the proper limits of purity or strength of chemicals, now official, or likely to become so hereafter.

Chairman: Dr. Charles O. Curtman.

Research Committee C. Subject, Inquiry into the feasibility of incorporating into the U. S. P. methods of identifying such drugs as may be found to permit of it, in a powdered condition.

Chairman: Dr. H. H. Rusby.

Research Committee D. Subject, Revision of the description and tests of organic chemicals.

Chairman: Dr. Charles Rice.

The members of these committees are to be selected hereafter and other committees are to be organized as occasion may arise. The results of the researches of these committees are to be reported to the whole committee of revision and may be published by the authors, provided they state that the papers are reports of U. S. P. Research Committees. This will secure to the profession an early knowledge of these researches and an opportunity to repeat the experiments and verify or controvert them.

In conclusion the undersigned would urge this association to take early action in considering all matters connected with the next revision of the U. S. Pharmacopœia. Neither the pharmaceutical nor

the medical profession is likely to lag behind in the progressive spirit of the age. New methods are being introduced requiring new agents of medication, obsolete preparations are discarded, other standards of strength or purity may become advisable, and all of such matters require careful study and discussion, and should not be left to be decided at the last moment in a pharmacopœial convention.

The wishes of this State association should be clearly ascertained in regard to the admission or rejection of certain preparations, in regard to inserting the doses of active remedies, to processes of manufacture or assay of galenical preparations and any other matters connected with our national Pharmacopœia, so that when the time comes to select delegates, they may be apprised of the wishes of the profession and not left to their personal impressions and the impulse of the moment when called upon to cast their vote for the rules guiding the next committee of revision.

DO DRUGS SUPPLIED BY THE JOBBER COMPLY WITH PHARMACOPŒIAL REQUISITION? IF NOT, WHO IS RESPONSIBLE, THE JOBBER OR THE RETAILER?

By Louis Emanuel.

Read before the Pennsylvania Pharmaceutical Association, June 15, 1894.

OLEUM SANTALI.

Have you changed the quality of the sandalwood oil you dispense? This was the question put to a pharmacist by a physician for whom he had been preparing oil of sandalwood capsules. The reply was, "I don't know that the quality of the oil now being used is of a different quality from that used before, but I do know that I bought it from a different source, and paid two dollars a pound more for it."

"Well," said the doctor, "I thought there was something wrong, for my patients get well surprisingly quick of late; I attributed it either to the quality of the medicine or to a mildness of the disease."

The oil which brought out the above observation was purchased from a well-known perfumer and dealer in essential oils, at the cost of nine dollars a pound. It was pale yellow in color, or rather nearly colorless, and very soluble in a mixture of 3 parts alcohol and 1 part of water at 20° C.

The Pharmacopœia describes oil of sandalwood as "a pale yellowish or yellow somewhat thickish liquid, etc. If to 1 cc. of the

oil at 20° C., there be added 10 cc. of a mixture of 3 volumes of alcohol and 1 volume of water, a perfectly clear solution should be obtained."

R. A. Cripps, from the results of extensive labors of his own, and those of other workers, suggests that the official description of the character and test of the oil should be modified as follows: Thick in consistence, pale yellow or nearly colorless, etc. At 15·5° C. it forms a clear or at most a faintly opalescent solution with five times its volume of a mixture of five parts rectified spirit with one fluid part of distilled water.*

M. E. Mensard says pure oil of sandalwood with sulphuric acid forms a viscid liquid which becomes pasty and is rapidly transformed into a solid mass adhering to the glass. The mass is easily recognized by its light, grey blue or greyish color, and dusty appearance it assumes with age. In adulterated specimens the resinous mass does not solidify and remains of a deep tint with a very distinct lustre.

For a long time oil of sandalwood has been purchased by me from one source. Partly on account of the want for an official test, and also partly on account of faith in the jobber, no tests were applied. This, however, did not prevent the precaution of reserving a portion of the oil purchased from time to time with a view of a comparative examination at some future period. Six samples of oil thus purchased, together with a sample from a different source, along with Santal Midy and a sample of West Indian oil were subjected to the solubility and sulphuric acid tests, with the following results:

No.	Soluble in a mixture of alcohol 3 parts, water 1 part, at 20° C.	With H_2SO_4 forms	Price.	Color.
			per lb	
1	not soluble.	brownish mass.	$7 00	distinctly yellow.
2	soluble.	brownish grey mass.	7 00	pale yellow.
3	not soluble.	oil globules surrounded by a garnet liquid.	7 00	"
4	"	brownish grey, with oil globules.	7 00	yellowish, almost colorless.
5	"	oil globules surrounded by a garnet liquid.	5 25	pale yellow.
6	"	brownish grey, with oil globules.	4 50	"
7	1 cc. soluble in 4 cc. of alcohol mixture.	greyish mass.	9 00	yellowish, almost colorless.
Santal Midy	opalescent.	"		
W. Indian	not soluble.	oil globules surrounded by tinted liquid.	3 50	pale yellow.

* Proceedings Am. Ph. Ass., vol. 41.

Number six was purchased recently, and when complaint was made that it did not meet with Pharmacopœial tests, the seller proposed to exchange it for better quality.

CUBEBA,

the Pharmacopœia says, is the unripe fruit of *Piper cubeba*. The oleoresin is official, and when prepared from the unripe fruit it is of a greenish color. Recently an Eastern firm sold powdered cubebs, the color of which was of a lighter shade than is usually met with. Upon examination it produced 18 per cent. of oleoresin of a brown color; this fact was brought to the notice of the seller, who made the following reply: "the Pharmacopœia requires the unripe fruit, but that is rarely found in the market; the regular article of commerce is the ripe fruit, which, of course, has less chlorophyll or green color than the unripe berries should have. We consider the cubebs which we carry in stock of as prime quality as can be found in the market."

FERRI PYROPHOSPHAS.

A pharmacist got himself into quite an unpleasant controversy through being unable to produce a clear mixture from the following prescription:

℞ Ferri Pyrophosphatis, ʒ iv.
Acid. Phosphorici Dil., f ʒ i.
Syr. Calcii. Hypophos., f ʒ iii.

This combination the physician claimed always produced a clear mixture when compounded by the pharmacist's competitor, this pharmacist, it appears, used iron pyrophosphate of a different maker, and when this pyrophosphate was used no difficulty was experienced. Upon examination of two samples of iron pyrophosphate, both contained iron phosphate and one of them contained an ammonium salt, possibly the citrate.

Upon whom rests the responsibility—the jobber, because he does not take due precaution to supply drugs of pharmacopœial standard, or the retailer, because he does not examine his purchases and insist upon having them comply with official tests?

RECENT CONTRIBUTIONS TO PHARMACY.

NOTE ON LEMON AND ORANGE PEEL.

In a paper before the Society of Public Analysts, E. G. Clayton (The Analyst, **19**, 134), has noticed that when orange peel is moistened with strong hydrochloric acid, its color changes from yellow to a rich, dark green; lemon rind, similarly treated, retains its hue, or, at most, assumes a dingy, yellowish-brown tint. A convenient and simple chemical test, therefore, which will distinguish between small fragments of lemon and orange peel is to touch them with a glass rod previously dipped in hydrochloric acid. The diluted acid will answer the purpose, but the reaction is slower. A few minutes' exposure to hydrochloric acid gas will effect this change in the pigment of orange peel. The color of lemon rind is unaffected. The shades of green developed by dilute hydrochloric acid are deepest in the cases of Mercia, Denia and Florida oranges; of moderate intensity with Jaffa and "blood" oranges; and feeble with Valencia and Tangerine oranges. This statement also applies to the reactions with *strong* hydrochloric acid, except that the color of Tangerine orange peel with the strong acid is perhaps more intense than that observed with any of the other varieties of the fruit. The peel of the lime behaves, with hydrochloric acid, like lemon rind.

Mr. Hehner remarked that it was not at all an infrequent occurrence for lemon and other peels to be artificially colored. He thought that at present too implicit reliance should not be placed on this test in the case of candied peel.

DETECTION OF COPPER IN GREEN PRESERVES.

A. Tschirch (Zeit. anal. Chem. **34**, 103) gives the following process for determining whether the green color in certain preserved foods is due to chlorphyll or to copper phyllocyanate.

An alcoholic extract is evaporated to dryness, the residue washed with water, and then treated with concentrated hydrochloric acid. Pure chlorphyll gives a deep blue solution, and a residue soluble in ether with a brown color, but hydrochloric acid dissolves only a small amount of a yellow substance when copper phyllocyanate is present, and the residue dissolves in alcohol with a green color. If dilute hydrochloric acid is added to the alcoholic solution, a green color indicates copper, used in its absence, the mixture is yellow.

EDITORIAL.

THE IMPERIAL PHARMACOPŒIA.

Last February, in a paper before the Pharmaceutical Society of Great Britain, Professor Attfield proposed that the next British Pharmacopœia should be so framed as to include all the English Colonies, and in that event it should be known as the "Imperial Pharmacopœia." This suggestion appears to have been acceptable to the Society.

Sufficient time has now elapsed for us to observe the nature of the reception which has been accorded to the proposition, by Canadians, as well as by our own countrymen.

We regret that there is a disposition on the part of some to take a narrow view, in which so-called national pride (or better, selfishness) is most prominent, rather than to treat the subject strictly on its merits.

In considering this question, no political issues should for a moment be entertained. It matters little to the pharmacists of the United States, whether our Pharmacopœia is used in Canada or not; but to the Canadian pharmacist, the announcement that he is to have a Canadian Pharmacopœia, cannot but be acceptable. He will then be somewhat relieved of the difficulty he has heretofore experienced in having a legal standard, to which he could scarcely conform in every case.

Professor Attfield stated that the United States Pharmacopœia is a strong competitor. Just how a standard is to be created, which will serve for England and all her colonies, is not clear, but we have no doubt that British brains and ingenuity will accomplish the desired result.

The chief satisfaction we shall derive from the change will be in having the Canadian Pharmacopœia as a connecting link between our own standard and that of Great Britain, by which all will tend to approach one system in weights and measures, as well as in strength of preparations.

Let us then, not become excited by such sentiments as the following, which recently appeared in the *Western Druggist:* "The acknowledged superiority of the U. S. Pharmacopœia, 1890, to any foreign pharmacopœia, and the favor the adoption of the metric system will receive from the French Canadians, suggests that in a few years the majority of Canadian pharmacists will be pharmaceutically annexed to the United States through the use of the U. S. Pharmacopœia"

These effusions would sound fairly well in an after-dinner speech, but in cold type they become ridiculous. It is doubtful if *any* notice should have been taken of these remarks, but the *Chemist and Druggist* has seen fit to make a neat reply under the title of "The Spread-Eagle Pharmacopœia." We are therein informed that Canadians themselves will have a hand in compiling this Pharmacopœia, and that it will be made official in Canada when it is published. This is a gentle way of reminding us to mind our own business, and we will do well to give heed to the advice.

LEGISLATION TO GOVERN THE SALE OF PATENT MEDICINES.

The title of Mr. Redsecker's paper (p. 333), "The Cutter and the Remedy,' may appear rather unprofessional, but, on reading beyond the title, it will be seen that if the suggestions there offered are carried out, the patent medicine

will become a thing of the past. Perhaps no paper at the recent meeting of the Pennsylvania Pharmaceutical Association drew out so much discussion. The chief objections urged against the proposed bill were the difficulties in the way of it ever becoming a law.

In the meantime, if every druggist will persist in advising the public against the use of secret remedies, and offer his own preparations, the wrong will gradually be righted, and the loser will be the patent medicine manufacturer.

F. A. FLÜCKIGER.

Professor Flückiger is making an extended tour through the United States. On June 16th, in company with Dr. E. R. Squibb, he visited the Philadelphia College of Pharmacy. A number of the officers and members of the College had assembled in the Library to meet them, and, after introductions, a few hours were given to the inspection of the building. The distinguished visitors devoted most of the time to the Laboratories and Museum; in the latter room the Martindale Herbarium was examined to considerable length. It was evident to all present that Professor Flückiger has an extended knowledge of a great variety of subjects, a very important one being his complete mastery of the English language.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Principles and Practice of Agricultural Analysis.—By Harvey W. Wiley, Chemist of the U. S. Department of Agriculture. The Chemical Publishing Co., Easton, Pa.

Dr. Wiley has undertaken to furnish for publication forty-eight pages monthly. The first number appeared in January of this year; and it is proposed to complete it about the last of next year.

So far as can be judged from the first five issues the subject is treated exhaustively. Commencing with the chemical elements, the author gives a concise description of each. Then follows a consideration of soils and their analysis.

The subject is treated in a logical and scholarly manner, which indicates that the author is thorough master of it, acquired by his long and creditable term of service in this particular department of chemistry.

Agriculture and pharmacy cover much ground in the field of science that is common to both; this especially applies to plant chemistry, and in detailing new processes for the use of the agricultural chemist, the author will be at the same time equally assisting the pharmaceutical investigator. No department of chemistry in America is so deficient in standard books as this one, and no one is so well adapted to supply that deficiency as Dr. Wiley.

Leitneria Floridana.—By Dr. William Trelease. Printed in advance from the sixth annual report of the Missouri Botanical Garden. 26 pages and 15 plates.

This monograph is another of the valuable contributions from the Shaw School of Botany, and exhibits the careful preparation and thoroughness that characterize the works of the author. *Leitneria Floridana*, Chapm., was discovered growing abundantly in the swamp lands of southeastern Missouri, by Mr. B. F. Bush, in November, 1892. Heretofore, it had only been reported

with certainty from Florida where first collected and described by Dr. Chapman. In the Missouri locality it was found in swamp lands which appear to be always under water and associated with plants known to be of a distinctly southern range. This discovery has suggested and supplied the material for the present valuable contribution.

The plant appears to propagate largely by sending out suckers which may account for the large preponderance of plants of one sex in each swamp. The habit appears to be arborescent rather than shrubby.

The tree is dicœcious, and the flowers appear in the early spring, before the leaves, from buds developed during the preceding autumn. The staminate flowers are devoid of any perianth, and are in catkins 1 to 7 inches long. The pistillate ones are in short catkin-like clusters, ½ in. long, and possess a rudimentary perianth of a few small glandular fringed scales. The character of both anther and stigma bespeak wind pollination. The leaves are lanceolate to elliptical-lanceolate acute at both ends, narrowly revolute and petiolate. Stipules could not be seen nor even stipular scars discovered. One of the remarkable characters, is the exceeding lightness of the wood. That of the stem showing a density of 0·207, and of the root 0·151 water being unity, being lighter than the bark of *Quercus suber*, the density of which is 0·240, and which has been considered lighter than any wood of which a record can be found. The figures given for other light woods are *Ochroma lagopus*, 0·240, the East Indian "Dedoaf Tha" 0·260, and for indigenous trees the *Ficus aurea* of Florida, 0·2616, Tupelo (Nyssa) 0·519, white cedar 0·332, and the willows and poplars ranging between 0·363 and 0·607. The extreme lightness of the wood of *Leitneria* is due to its loose structure and softness of its tissues, which are easily compressible under the thumb-nail, and the absence of any heart wood.

A careful microscopic examination was made, and the anatomy is described in detail. The stem is peculiar for the presence of secretion passages accompanying the pith sheath. The entire absence of these secretion reservoirs, and of sieve-tubes and grit cells in the cortex is noteworthy. The medullary rays are usually only one or two cells in thickness. The periodic growth rings are evident only on examining the wood with a lens. The most striking feature of these rings is the production of a row of wood parenchyma cells replacing the libriform in the first series cut-off by the cambium, each spring in the beginning of the year's growth. The cortex is rich in tannin, likewise the epidermis of the leaf. The leaf structure shows immediately under the upper epidermis a layer of quadrate cells, each containing a large stellate crystal. The mesophyll is composed of 2 or 3 layers of compactly placed, rather short palisade cells and a spongy parenchyma with ample intercellular spaces below.

The pubescence is of two kinds—slender-pointed, thick-walled, occasionally binate hairs, usually with transverse septa especially toward the widened base, and less numerous clavate hairs septate both longitudinally and transversely, their small cells with yellow contents. The habit, morphology and histology of the plant are handsomely illustrated by 15 full-page plates, 8 of which are photomicrographs.

The views of the various systematists are explained. Bentham and Hooker considered this to be a monotypic genus, and entitled to ordinal rank under the name *Leitneriæ*, which decision is sustained by Engler (Engler and Prantl.

Pflanzenfamilien), who adopts the name *Leitneriaceæ*, and places it between *Myricaceæ* and *Salicaceæ*. Recent histological studies would indicate its close relationship to the polypetalous orders *Dipterocarpeæ* and *Hamamelideæ*.

The peculiar lightness and softness of the Missouri cork-wood and its slight porosity, suggest that it should find application in the arts. It may prove a useful substitute for cork in the manufacture of bottle stoppers for chloroform, and for gummy substances, which cause cork to tear badly after a little use.

G. M. B.

Analyses of Twelve Thousand Prescriptions. By William Martindale. London, 1894. H. K. Lewis. Pp. 504.

The anticipated revision of the British Pharmacopœia has induced Mr. Wm. Martindale, joint author of the *Extra Pharmacopœia*, to publish the results of "Analyses of Twelve Thousand Prescriptions," in the hope that they may serve to indicate the current of British medical practice during the past ten years. The prescriptions analyzed were the last dispensed antecedent to May 1, 1894, in six pharmacies in typical positions in the United Kingdom—2,000 at each centre—Aberdeen, Bournemouth, Carlisle, Cork, Oxford and London. The basis of the compilation was the index of the *Extra Pharmacopœia*, and official and unofficial drugs and preparations were noted.

The seven highest of the series were: Spirit of chloroform, 1,117 times; tincture of nux vomica, 991; glycerin, 875; sodium bicarbonate, 807; syrup of orange, 796; aromatic spirit of ammonia, 675, and quinine sulphate, 598. The lowest point touched in the official preparations was by extract of cannabis indica, ammoniated mercury and lemon juice, each of which occurred 30 times; 215 official articles and 84 unofficial were noted. Other than tests and those required for making official compounds, 126 official products were not once prescribed. Amongst these latter it is singular to our American eyes to note the presence of solution of magnesium citrate and solution of morphine sulphate. Solution of morphine acetate was prescribed 46 times; opium was called for 52 times; morphine acetate, 19 times; morphine hydrochlorate, 59 times, and the solution of the last named, 172 times. Whilst especial preference is shown for the hydrochlorate salt of morphine, the sulphate being but once dispensed, in the quinine salts the preference, by far, is for the sulphate; it being ordered 598 times as against 18 times for the hydrochlorate, 15 for the hydrobromate, 19 for the salicylate and 22 for the valerinate.

The practice of reviewing prescription files has been followed in a number of cases in this country in the past, notably by Albert E. Ebert, of Chicago, who, in 1886, analyzed some 15,000 prescriptions; and it has a certain value in indicating the trend of medical practice. But, undue stress should not be laid upon the value of such tables. They are indicative only, in the largest and best sense, when they embrace returns from the prescription files, not of a few cities for a few months, but of *all* the prominent centres of population, for a term of years. It is obvious that the obtaining of such data would involve enormous labor, but it is seemingly the only way to obtain information that would be thoroughly representative of the medical practice of the whole country.

J. W. ENGLAND.

Recipes for the Manufacture of Flavoring Extracts, Handkerchief Extracts, Toilet Water, Cologne, Bay Rum, etc. By Charles E. Hires. Published by the Charles E. Hires Company, Philadelphia, 1894. Pp. 46.

The title fully indicates the scope of this publication, and many useful formulæ are given that cannot but be of value to the intelligent druggist who is accustomed to make his own preparations.

Some valuable information concerning vanilla is given in the introductory remarks, as the following quotation will show: "We have five varieties of vanilla beans—Mexican, Bourbon, Tahiti, South American and Wild Bean. Of these the Mexican is highest in price and value, then follow in order the Bourbon, the South American, the Tahiti and the Wild. Each of these has a distinct flavor peculiar to its species. The Mexican is worth on the market one-third more than the Bourbon, and the Bourbon, perhaps, one-third more than the Tahiti and South American.

"In vanilla beans we would advise the use of the Mexican variety only, though the Bourbon is sometimes used; the other varieties should never be used as a condiment, and we do not think they ever are, knowingly, but are used to a great extent to adulterate the Mexican in different ways; especially are they used to adulterate Mexican cut beans, which are used very largely by many manufacturers. The legitimate cut beans are made in Mexico. After the crop is cured and the perfect beans are selected for bundling, those having fungous growth, crooked and knotty, are cut up and shipped to this market as cut beans.

"The writer, through his intimate knowledge of the extent of the Mexican bean crop raised each year, has learned that in the United States alone there is sold as legitimate Mexican cuts and consumed, more than twice the total quantity of cut beans exported from Mexico."

Probably no one is prepared to speak on the subject of vanilla with more authority than Mr. Hires. He having personally inspected the vanilla plantations in Mexico. See this Journal, 1893, p. 571.

Experiments with Sugar Beets. By Harvey W. Wiley, with the collaboration of Dr. Walter Maxwell. U. S. Department of Agriculture, Division of Chemistry. Bulletin No. 39.

Record of Experiments with Sorghum in 1893. By Harvey W. Wiley, with the collaboration of Oma Carr and C. I. Hinman. U. S. Department of Agriculture, Division of Chemistry. Bulletin No. 40.

Experimental Farms.—Reports for 1893. By the Director, William Saunders. Ottawa, Canada, 1894. Pp. 351.

Consular Report, vol. 45, No. 164, May, 1894. Pp. 160.

An article on p. 70 of this report is of especial interest to pharmacists. It relates to Sicilian essential oils, by Charles M. Caughy, U. S. Consul at Messina. He sent a circular letter to every manufacturer and exporter of Messina, requesting information concerning manufacture, prices and detection of adulterations of essential oils. The replies embody information of considerable value.

Transactions of the Academy of Science of St. Louis, vol. 6, Nos. 12, 13, 14, 15 and 16. No. 13 is "A Study of the Relations of *Salix nigra* and *S. Amygdaloides*, together with the hybrids, arising from them as these species exhibit themselves in the vicinity of St. Louis. By N. M. Glatfelder, M.D. Issued April 17, 1894.

No. 16, by Charles Robertson, treats of "Flowers and Insects—Rosaceæ and Compositæ"—and was issued April 26, 1894.

Manual of the Phanerogams and Pteridophytes of Western Texas. By John M. Coulter. Contribution from the U. S. National Herbarium, vol. 2, No. 3. Published by authority of the Secretary of Agriculture.

Non Nocere. By A. Jacobi, M.D. An address delivered before the Eleventh International Congress at Rome, Italy, in its General Session of April 4, 1894.

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

THE PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

The annual meeting of this association was held at the Neversink Mountain House, Reading, Pa., June 12 to 15, 1894.

The association was welcomed by ex-Mayor Merritt. The address of President McIntyre followed. In this he suggested a number of changes, the most notable of which was to have the nominations for officers made by a committee of seven, whereby, it was thought, a better selection might be made. This suggestion was adopted at a later session. The executive committee reported that 290 active members were on the roll.

The committee on legislation was requested to protest against the proposed increased tax on alcohol from ninety cents to one dollar and ten cents per gallon.

From the committee on trade interests it was learned that many druggists have refused to use alcohol which is supplied by the "Trust."

The committee on adulteration read a valuable report which elicited much discussion. The committee had at considerable labor and expense examined a large number of samples. Laudanum was found to be of better quality than formerly. Spices were found to be adulterated to at least fifty per cent. mostly with starch. Rock candy syrup, it was stated, contained considerable glucose, which tended to throw doubt on the claims of many manufacturers of this article, that it is made by dissolving rock candy in water.

The officers selected to act at the next annual meeting were: President, Wm. H. Reed, of Norristown; First Vice-President, John B. Raser, of Reading; Second Vice-President, C. N. Boyd, Butler; Treasurer, Joseph L. Lemberger, Lebanon; Secretary, J. A. Miller, Harrisburg; Executive Committee, A. R. Durham, W. S. Seabold, J. H. Knouse.

The next annual meeting will be held at Eagle's Mere, on or about June 18 1895. J. B. Duble was elected local Secretary for that occasion.

Mr. George M. Beringer, of Camden, N. J., was elected an honorary member. The social features of the occasion were well looked after by the Reading pharmacists, and every visitor enjoyed the real hospitality accorded by them.

A number of valuable papers were read in addition to those published elsewhere in this issue of the Journal.

Charles E. Hires delivered an interesting address, in which he advocated the system of having clerks to share in the gross receipts, as a part of their compensation.

Dr. William H. Reed read a paper on "Cutting Prices of Patent Medi-

cines." Andrew Blair answered the query, "Who shall be our Apprentices?" He also furnished some samples of official preparations, notably, Basham's mixture, solution of magnesium citrate and syrup of tolu, in which he attributed superiority of product to be due largely to first-class materials. In most cases, he claimed, the official formulas would yield a reliable and permanent preparation.

A. L. Beck presented a paper on commercial solution of ferric chloride. He found the variation of ferric chloride from the official requirement to be comparatively small; some contained too much free hydrochloric acid, and one showed an excess of nitric acid.

William B. Thompson read a paper on "The Drug Business To-day and Yesterday," and H. E. Peters one on Terebene.

H. N. Coxe recommended the preparation of mercurial ointment by the use of a mutton suet that had been carefully rendered and then preserved for six months wrapped in waxed paper; during this time it became white and granular, and would then extinguish the mercury in much less time.

MISSOURI PHARMACEUTICAL ASSOCIATION.

The sixteenth annual meeting of this association was held at Excelsior Springs, Mo., June 12 to 15, 1894, under the presidency of William Mittlebach. A number of interesting and valuable papers were read, one of which will be found on page 355 of this issue.

THE MINNESOTA PHARMACEUTICAL ASSOCIATION.

The tenth annual meeting of this association was held at the Hotel St. Louis, Lake Minnetonka, Minn., June 12 to 13, 1894.

The membership of this association was reported to be 226, an increase of 15 during the year.

In the discussion of trade interests, it was proposed for the protection of such interests, that a line of household remedies, to be sold by druggists largely in place of patent medicines, should be manufactured by the State Association.

This proposition caused a general discussion and one which waxed warm at times, but no actual decision in the matter was reached, although the burden of opinion seemed to favor the adoption of the scheme as proposed. As finally left, the president was asked to appoint a committee to prepare another report, such report to be presented at the next annual meeting. In connection with the subject of patent medicines further action was taken in the passage of a motion instructing the committee on legislation to prepare a bill to be sent to the legislature, requiring all peddlers of patent medicines to pay a license of $100 per annum for the privilege.

The Secretary, Charles T. Heller, read a paper on "Elixir Phosphate of Iron, Quinine and Strychnine." A history of the Minnesota College of Pharmacy, by Dean Wulling, was also read.

Mr. Heller's paper will appear in the August number of this Journal. It contains a practical formula for the rapid preparation of this elixir.

FIG. 1A.—Fruit of Theobroma Cacao. One-half natural size.

FIG. 1B.—Seed deprived of succulent outer coat and showing veiny middle one. *a*, chalaza; *b*, micropyle and hilum end. Natural size.

FIG. 1C.—Embryo deprived of its coverings, showing the irregularly creased cotyledons. *a*, one of the creases; *b*, projecting end of radicle. Natural size.

FIG. 1D.—Embryo with cotyledons separated and exposing their inner faces. *a*, *a*, the cotyledons; *b*, radicle; *c*, caulicle. Natural size.

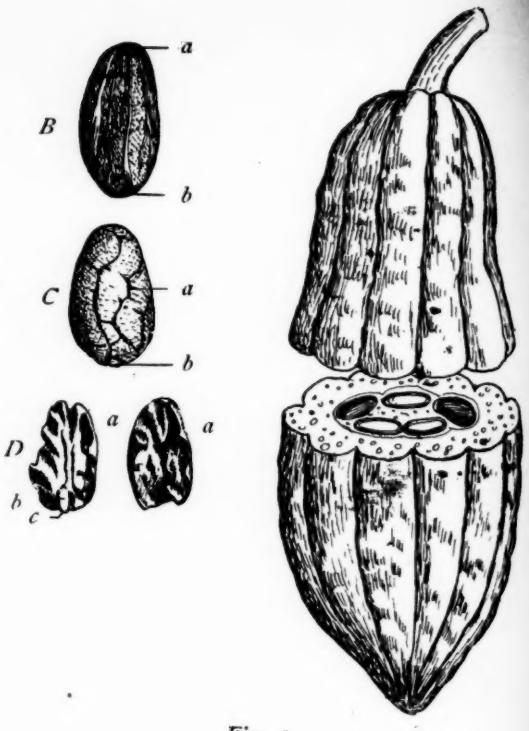

Fig. 1

FIG. 2.—Section of a portion of one of the cotyledons of Ariba Cacao, magnified 750 diameters. *a* and *g*, intercellular spaces; *b*, cell wall; *c*, a starch grain; *d*, fat crystals; *e*, nucleus of cell; *f*, granular protoplasm.

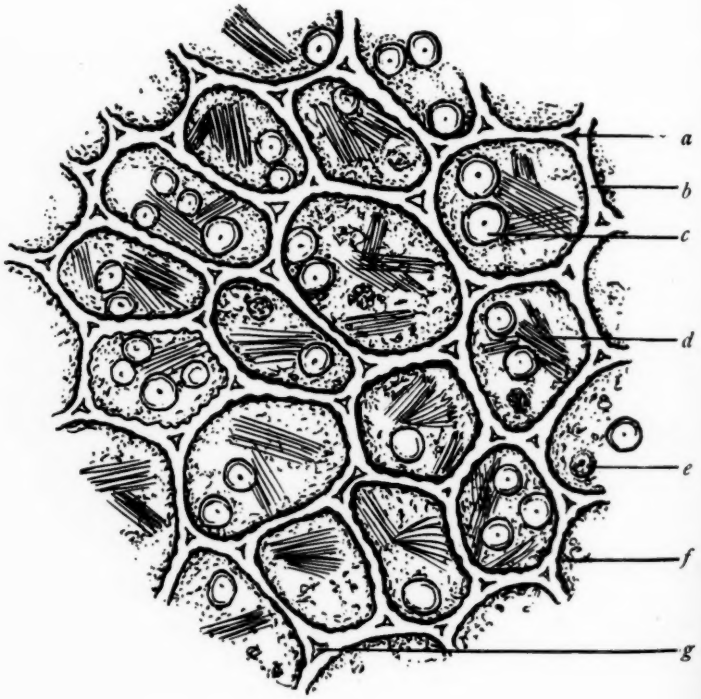

Fig. 2